WE CLAIM:

1. A core rod utilized in the process of forming a core in a metal casting, said core rods comprising a length and opposite ends, said core rod being generally round in cross-section along at least a portion of the length of said core rod proximate at least one of said ends configured for use in forming the core of the metal casting, said core rod being made from a precipitation-hardenable alloy comprising about 40.0 to 75.0 wt. % Ni, about 0.0 to 25.0 wt. % Co, about 10.0 to 25.0 wt. % Cr, and about 0.0 to 20.0 wt. % Fe.
2. The core rod of claim 1, wherein said alloy further comprises incidental impurities.
3. The core rod of claim 1, wherein said alloy comprises about 50.0 to 55.0 wt. % Ni, up to 10.0 wt. % Co, and about 17.0 to 21.0 wt. % Cr.
4. The core rod of claim 1, wherein said alloy comprises about 42.0 to 46.0 wt. % Ni, and about 19.0 to 23.0 wt. % Cr.
5. The core rod of claim 1, wherein said alloy comprises at least 72.0 wt. % Ni, about 14.0 to 17.0 wt. % Cr, and about 6.0 to 10.0 wt. % Fe.
6. A method of forming a core within a metal casting, the method comprising the steps of:

   providing a precipitation-hardenable alloy core rod having a length and opposite ends;

   packing sand around at least one end of the core rod to form a sand core with core rod;

   placing the sand core with core rod into a mold;

   pouring molten metal into the mold and around the sand core with core rod; and

   producing a metal casting having a core and a uniform sidewall thickness in a range of +/- 0.060 inches.
7. The method of claim 6, wherein the providing step includes the step of providing a core rod being made from a precipitation-hardenable alloy comprising about

40.0 to 75.0 wt. % Ni, about 0.0 to 25.0 wt. % Co, about 10.0 to 25.0 wt. % Cr, and about 0.0 to 20.0 wt. % Fe.

8. The method of claim 7, wherein the providing step includes the step of providing a rod core that does not stress relax during and after the pouring step.

9. The method of claim 7, wherein the providing step includes the step of providing a rod core that remains straight during and after the pouring step.

10. The method of claim 7, wherein the providing step includes the step of providing a rod core that does not bend during and after the pouring step.

11. The method of claim 7, further comprising the step of solidifying the metal in the mold and around the sand core with core rod to form the casting.

12. The method of claim 11, wherein the providing step includes the step of providing a rod core that does not stress relax during the solidifying step.

13. The method of claim 11, wherein the providing step includes the step of providing a rod core that remains straight during the solidifying step.

14. The method of claim 11, wherein the providing step includes the step of providing a rod core that does not bend during the solidifying step.

15. The method of claim 7, wherein the producing step includes the step of machining the casting into a plunger tip for use in one of aluminum and magnesium die casting operations.

16. The method of claim 15, wherein the pouring step includes the step of pouring a beryllium-copper alloy.

17. A beryllium-copper alloy plunger tip for use in aluminum and magnesium die casting operations formed by the method of claim 6.

18. The plunger tip of claim 17, wherein the plunger tip comprises a cylindrical body closed at one end and having an axially extending cavity therein, said body having a generally uniform wall thickness determined by the distances of an interior surface and exterior surface of the body from the axis of the plunger tip at a predetermined point along the length of said plunger tip.

19. The plunger tip of claim 18, wherein the body is internally threaded to enable the plunger tip to be connected to a rod.

20. The plunger tip of claim 18, further comprising an adapter having a first end and an opposite second end, wherein the body is internally threaded to cooperatively engage said first end of said adaptor, said second end of said adapter being adapted to cooperatively engage a rod.